

Utah Department of Transportation Traffic Management Division

April 2015

Monthly Report



2060 South 2760 West Salt Lake City, Utah 84104 801-887-3710 www.udottraffic.utah.gov

Mission of the Traffic Management Division

- To Support UDOT and the Department of Public Safety to Achieve Zero Fatalities.
- To Help Provide Reliable and Efficient Travel Throughout Utah.
- To Provide Useful and Timely Real-time Traffic Information.
- To Work Together with Other Government Agencies to Serve the Public.
- To Provide Excellent Customer Service.

Traffic Operations Center



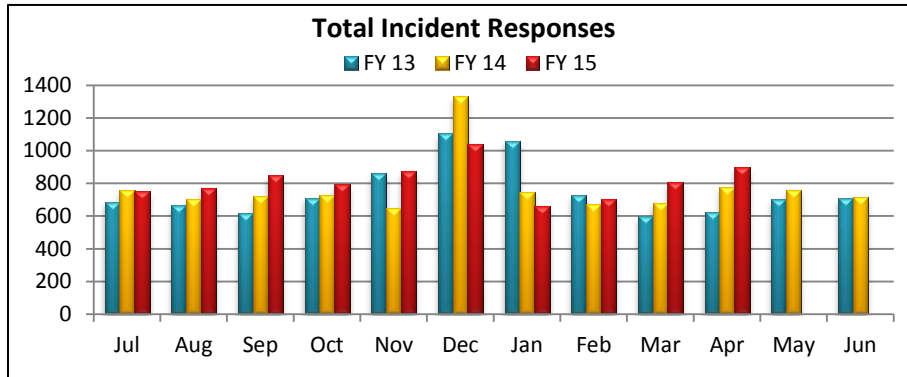
Field Devices Summary

Freeway PTZ Cameras	369
Surface Street PTZ Cameras	422
RWIS & Contracted Weather Cameras	199
Viewable Detection Cameras	67
Total Cameras	1057
Freeway VMS	95
Surface Street VMS	49
Portable TOC VMS	5
Legacy Trucks Prohibited VMS	21
Variable Speed Limit VMS	15
Chain-Up Signs	6
Total VMS	191
HAR (27 permanent/5 portable)	32
RWIS	98
Ramp Meters	63
TMS	536
Express Lane Plazas	63
Traffic Signals	1600

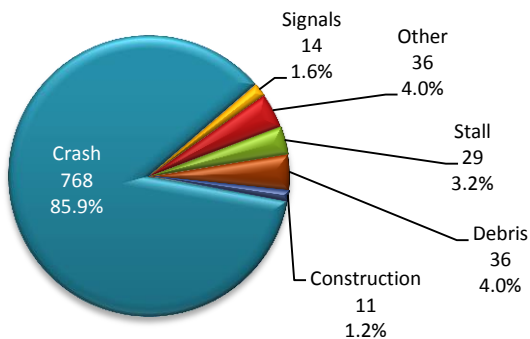
Operations Summary

VMS Messages Displayed	46,501
Signal Timing Work Orders	37
Signal Maintenance Work Orders	172
All New Work Orders	674
Work Orders Closed During the Month	621
Incident Responses by the TOC	894
Incident Duration Average Minutes	60
IMT Assists	2191
Website Visitor Sessions	167,521
511 Calls	18,310
Weather Desk Calls	479
Ask Commuterlink Questions	46
Average Speed AM Peak (07:00-08:00)	62.53
Average Speed PM Peak (17:00-18:00)	57.02
Incidents Using Signal Timing Assistance	58
UDOT Traffic Followers and Re-tweets	288,952
UDOT Traffic App Total Downloads	5,414

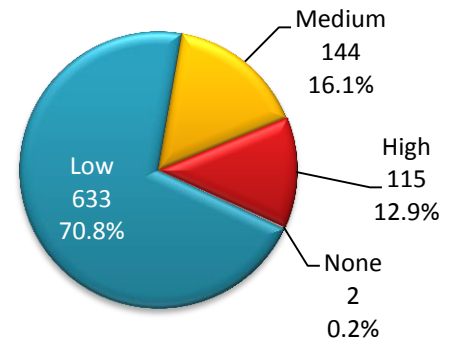
An incident response occurs each time an incident is recorded in the ATMS system. These can be of several types, including crash, construction, debris, stall, congestion, or other. Crashes are separated into three subcategories: property damage, personal injury, and fatal. Each time an incident is created, information is sent to the 511 system, the website, and to the public through email alerts. An incident remains active until it has been completely cleared from the roadway.



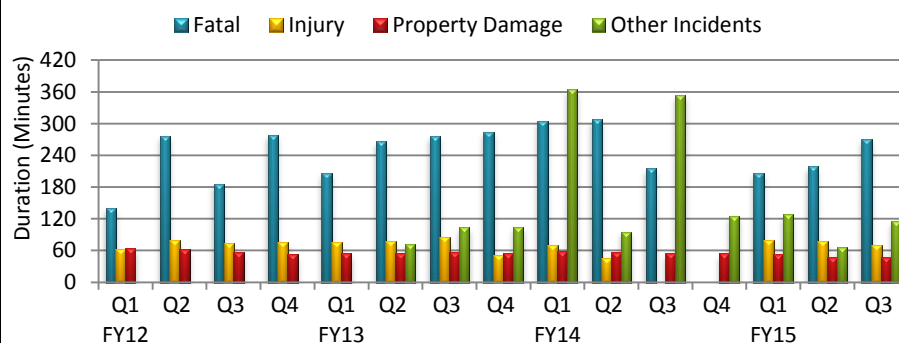
Incidents By Type for April 2015



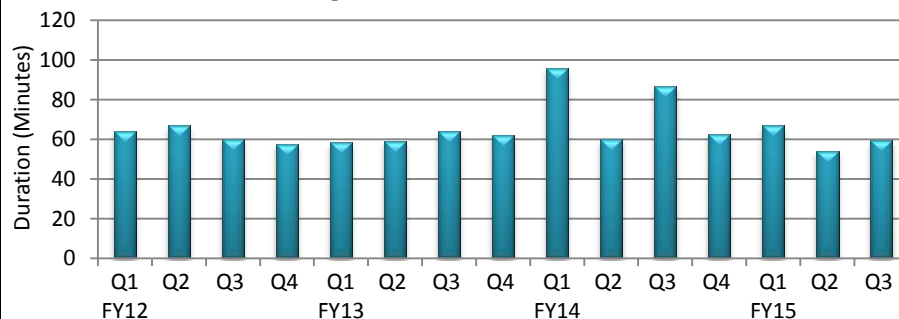
Incidents by Severity for April 2015



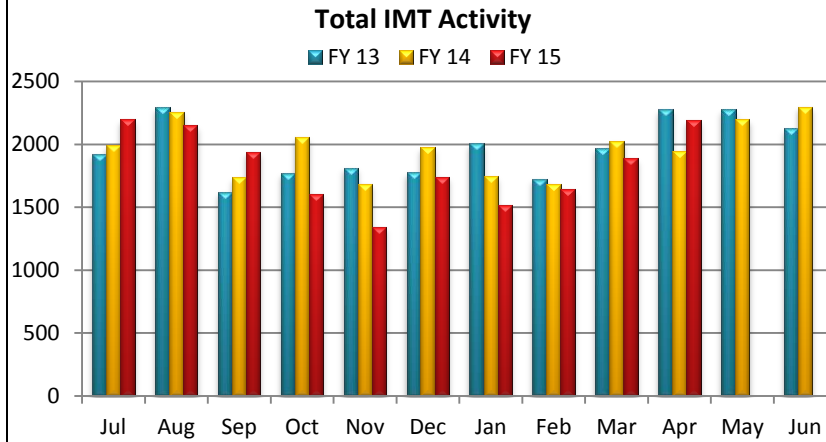
Average Crash Duration



Average Duration of All Incidents

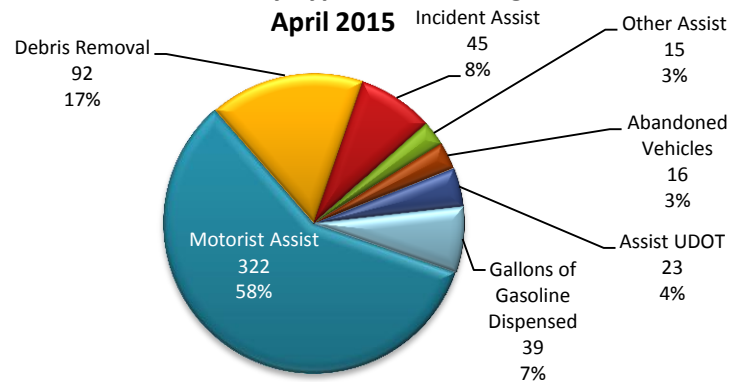


Incident Management Team (IMT) Activities



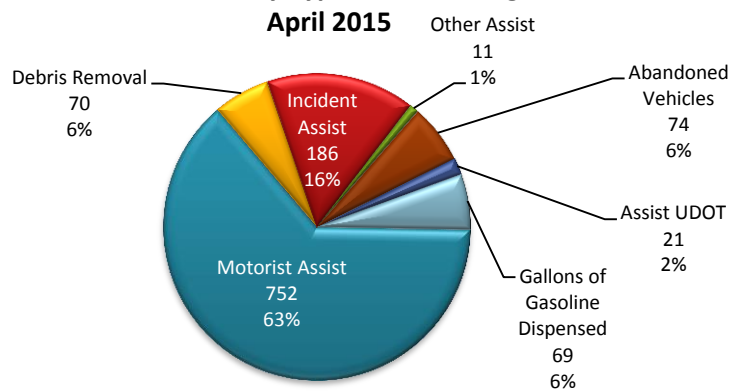
IMT Activities by Type for UDOT Region 1

April 2015



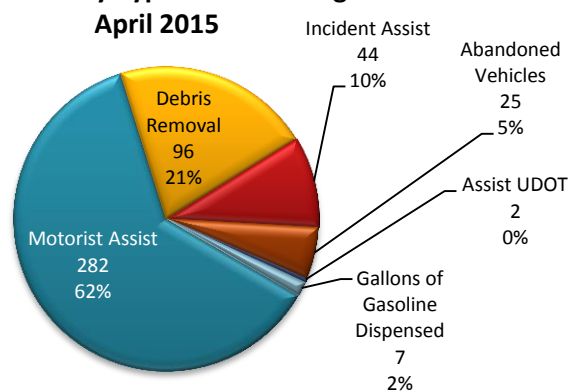
IMT Activities by Type for UDOT Region 2

April 2015



IMT Activities by Type for UDOT Region 3

April 2015



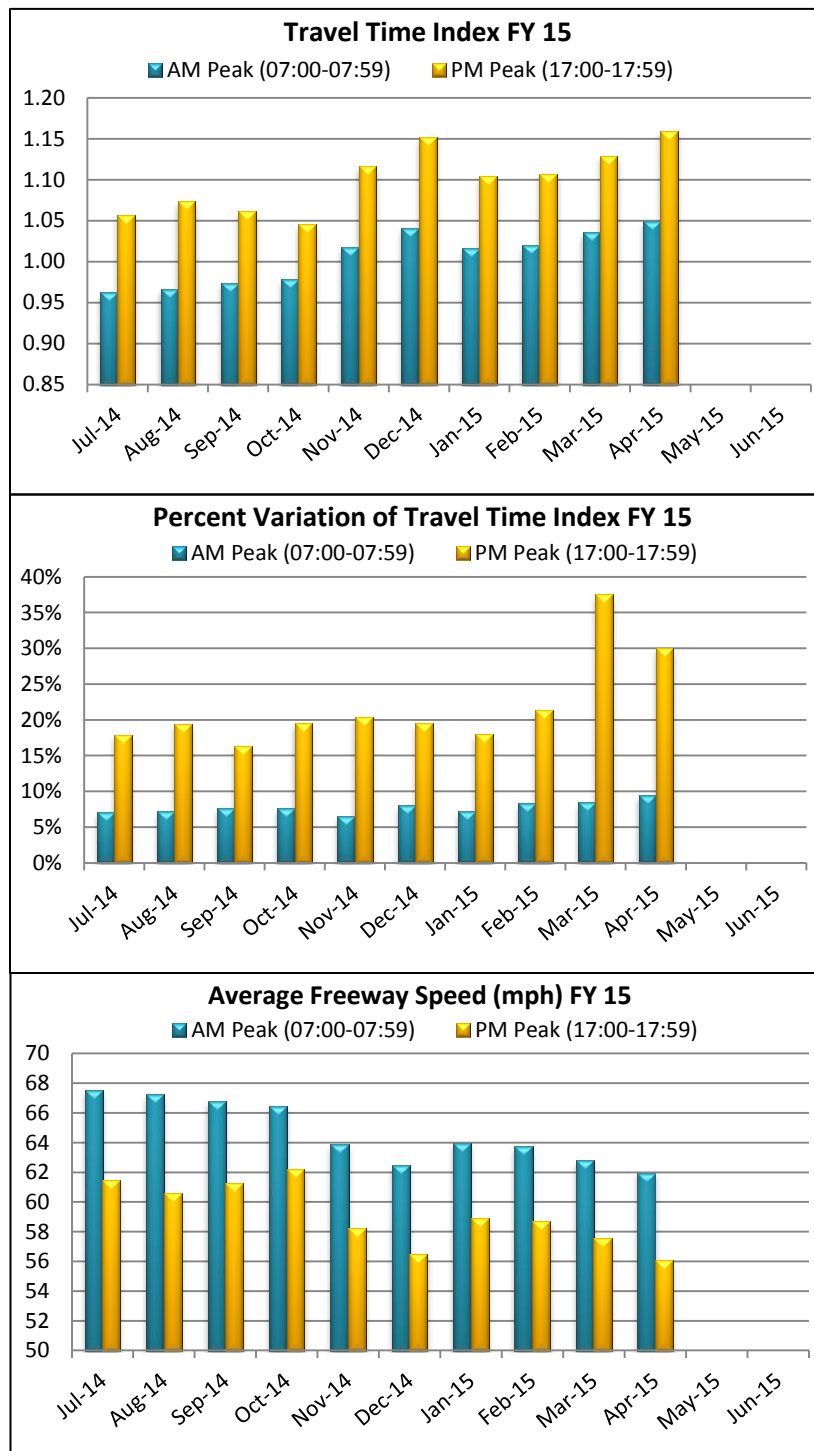
Freeway Traffic Level of Service

Freeway flow measures are taken from the Traffic Monitoring Stations (TMS) located throughout the Wasatch Front. As more TMS sites are installed throughout the state, they will be included in these performance measures.

Travel Time Index: This measure of mobility is based on freeway speeds and is weighted by segment lengths and by the traffic volume. A value of 1.0 represents free-flow speeds. A value of 1.12 indicates that the average vehicle trip takes 12% longer than if that were the only vehicle on the freeway.

Percent Variation of Travel Time Index: The percent variation in the Travel Time Index is a measure of how much the Travel Time Index changes from day-to-day.

Average Freeway Speed: The freeway speed is weighted by volume.



Freeway Traffic Level of Service

Peak Travel Time Index by Segment for April 2015

(+) Direction (NB, EB, Clockwise)

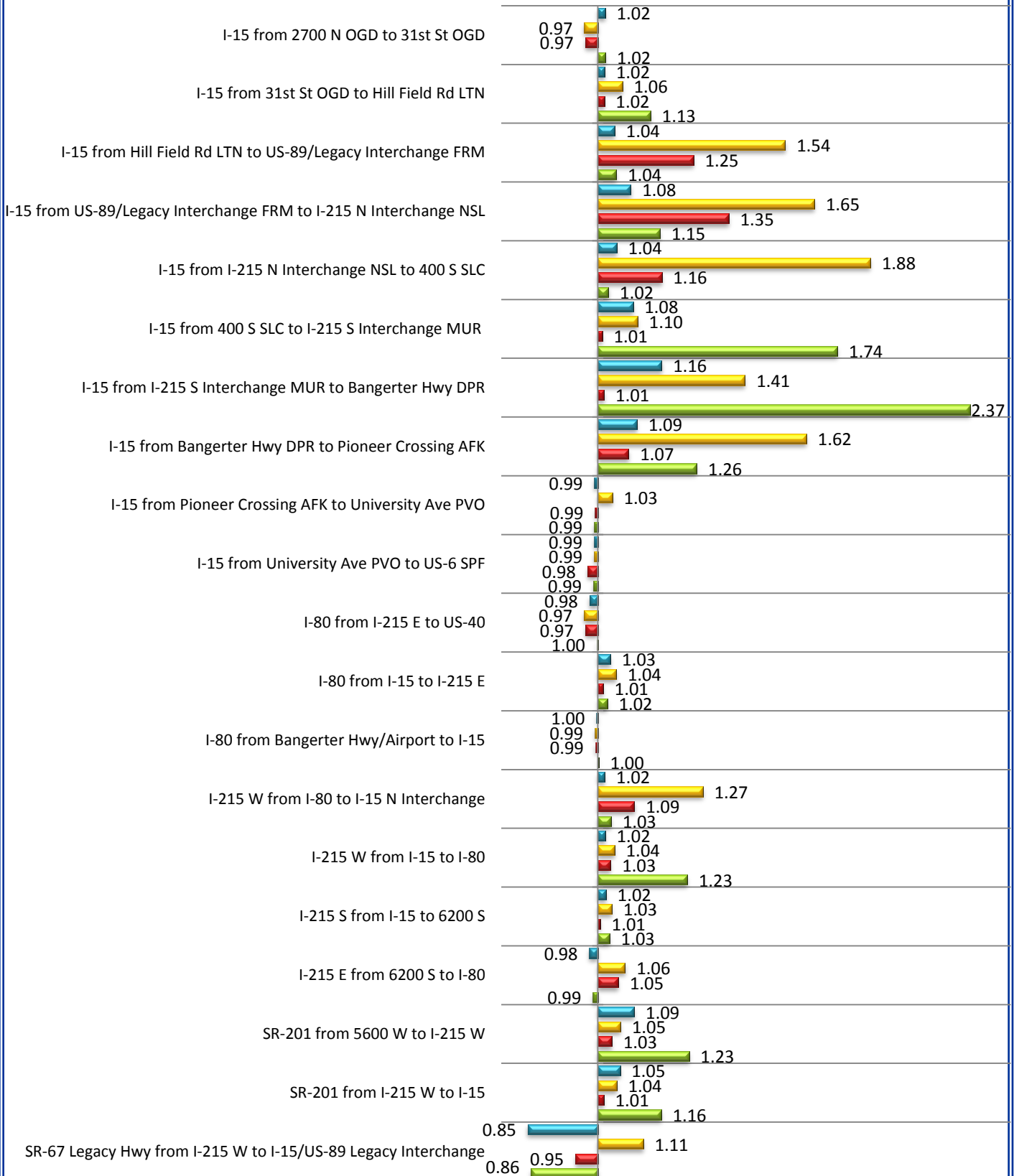
(-) Direction (SB, WB, Counter Clockwise)

AM Peak (07:00-07:59)

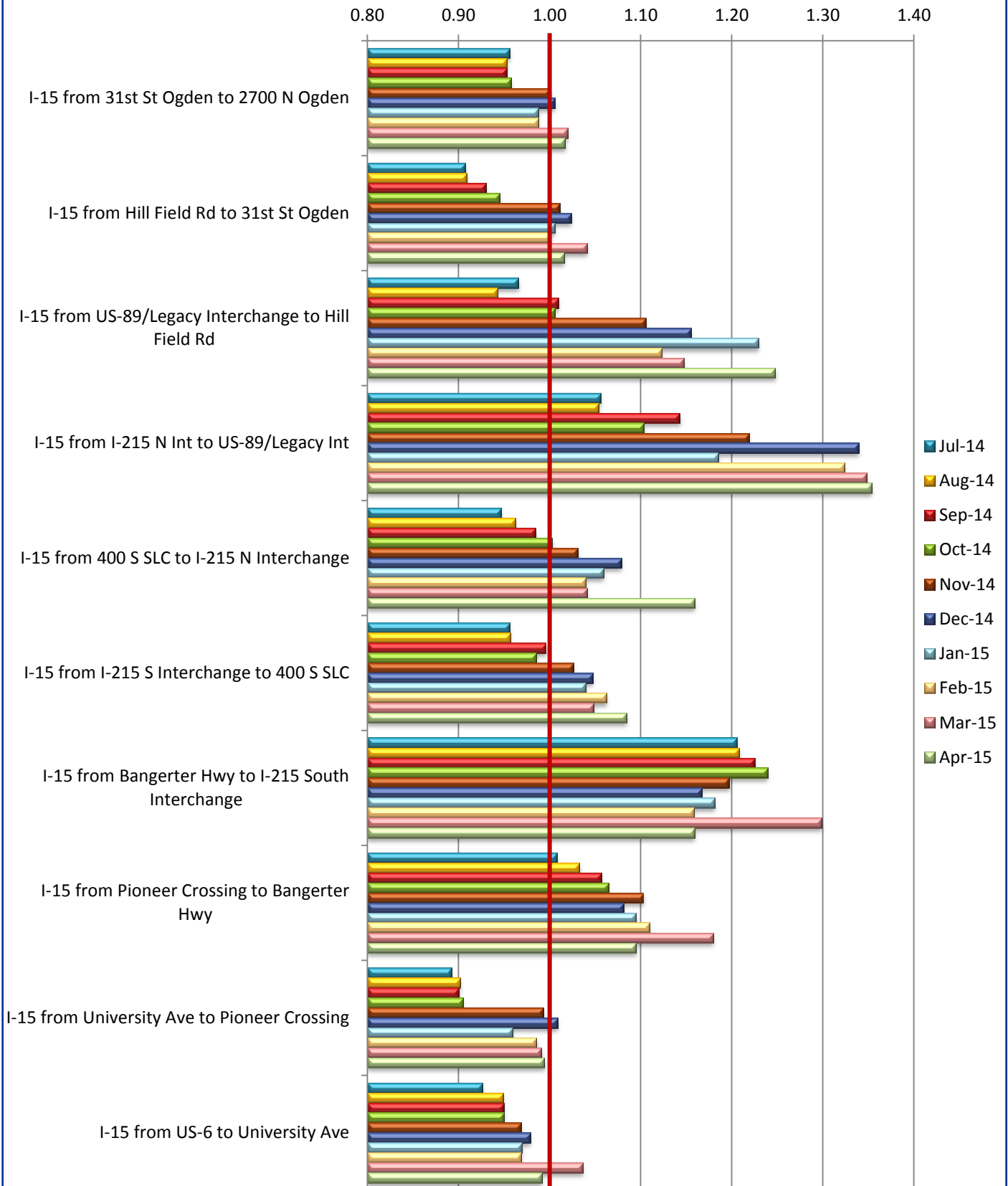
PM Peak (17:00-17:59)

AM Peak (07:00-07:59)

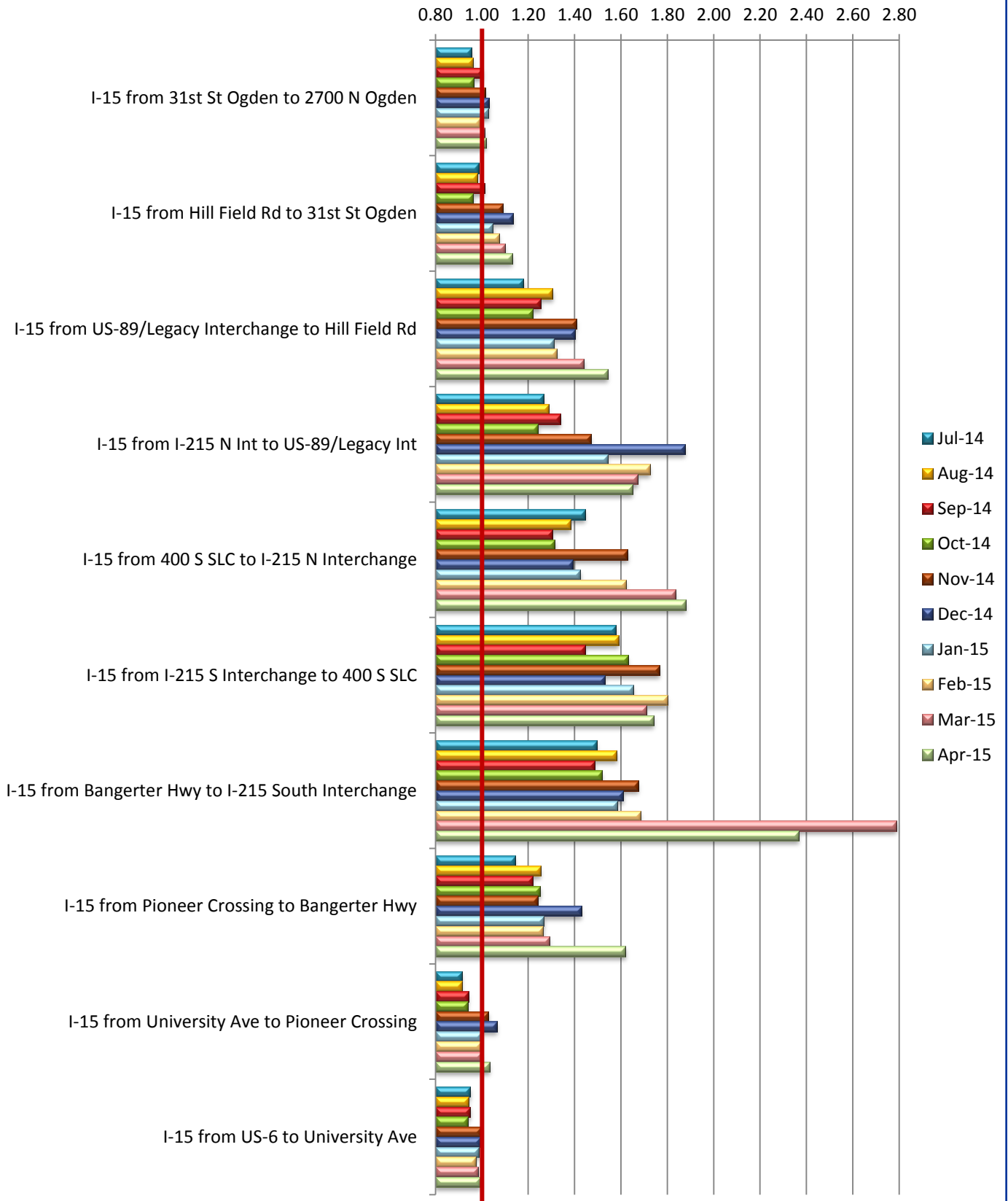
PM Peak (17:00-17:59)



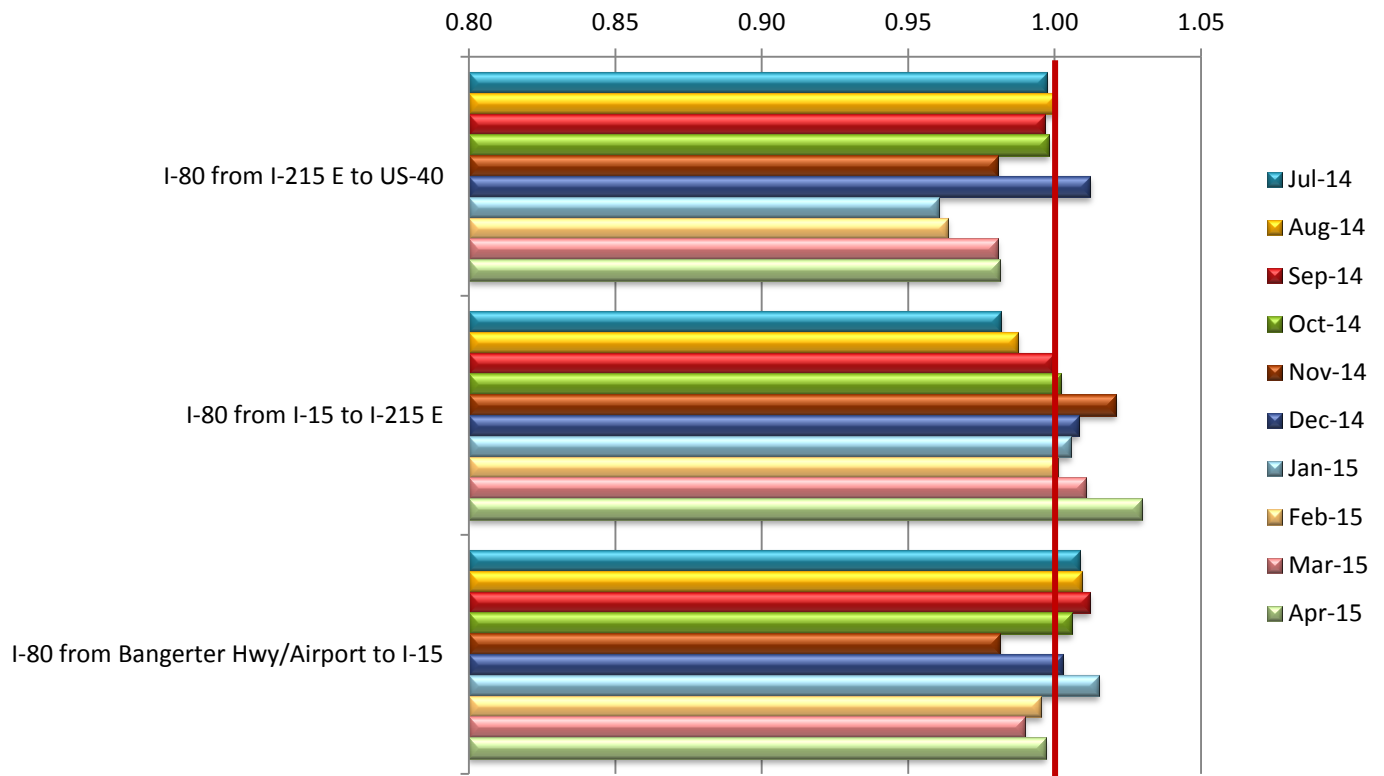
AM Peak Travel Time Index for I-15 FY 15



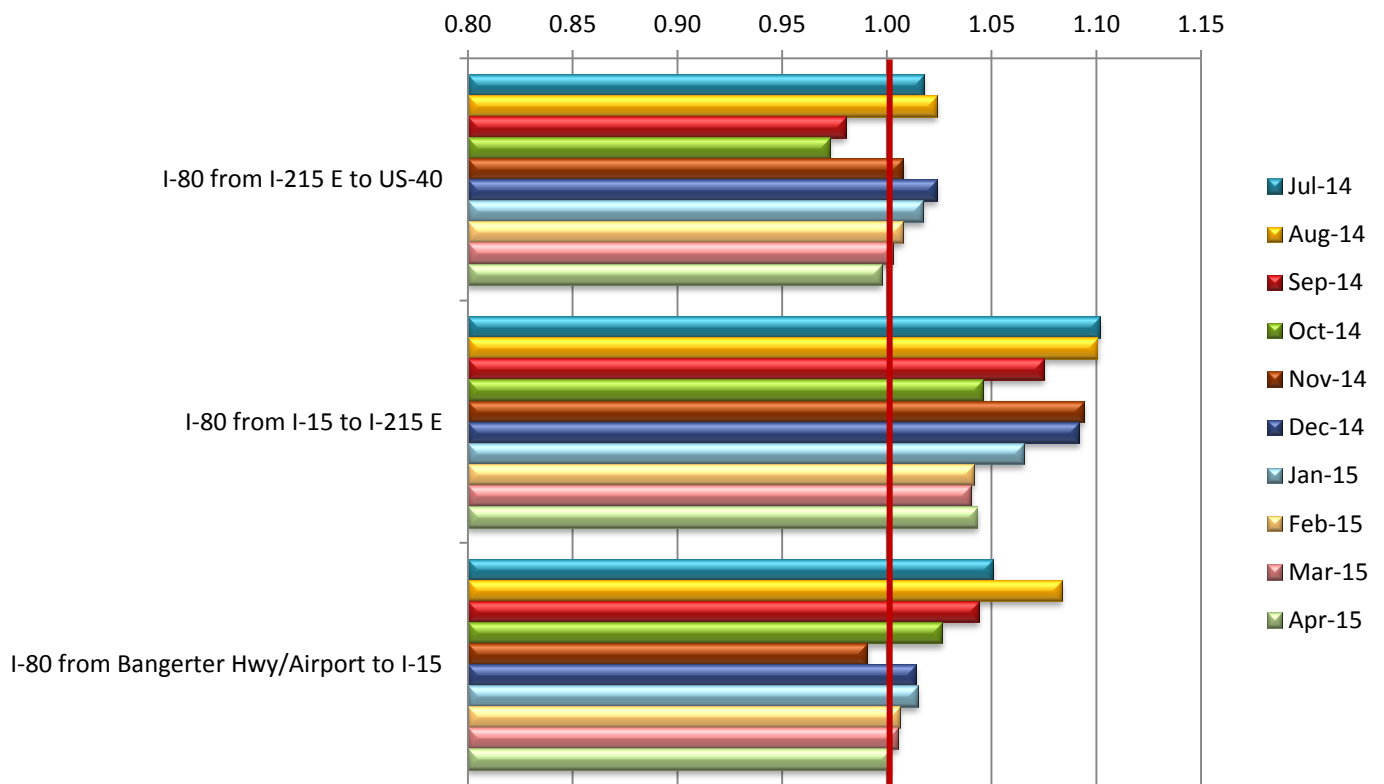
PM Peak Travel Time Index for I-15 FY 15



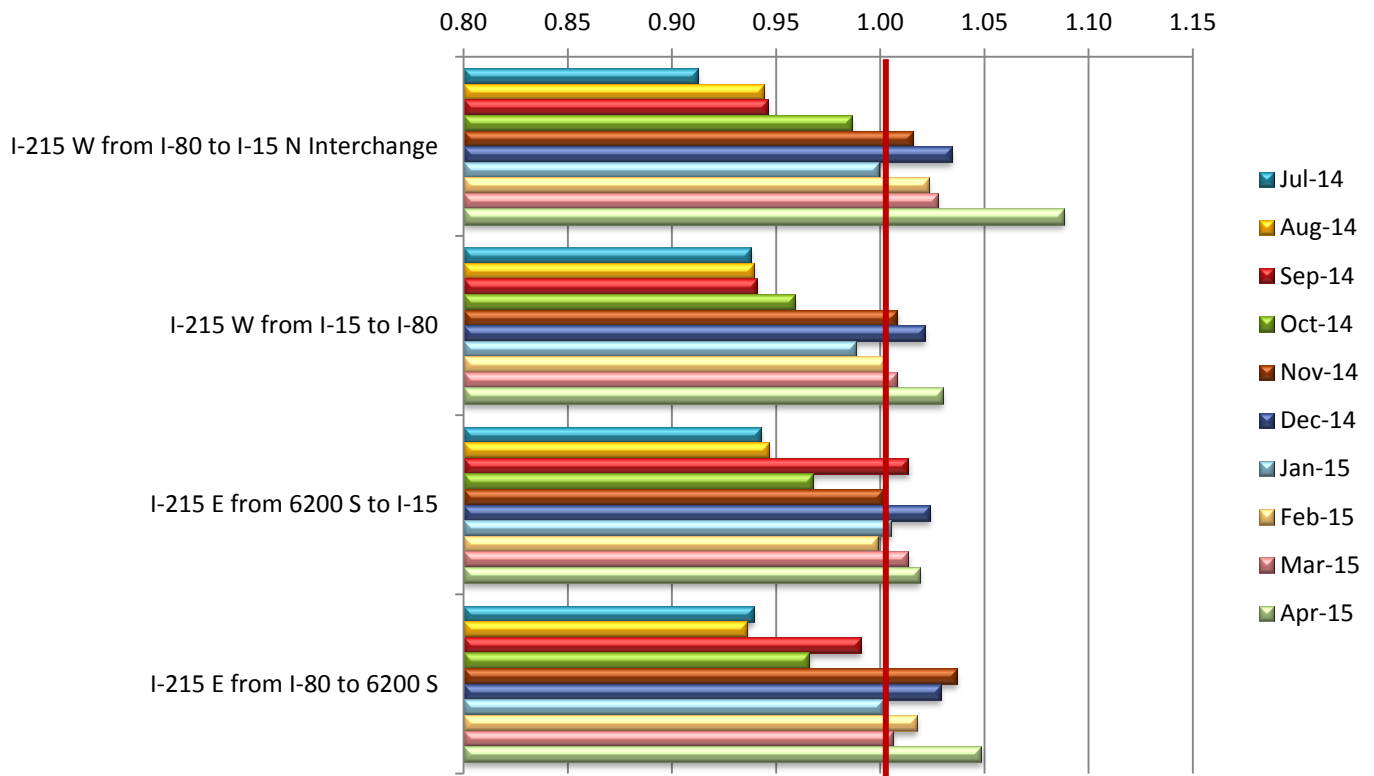
AM Peak Travel Time Index for I-80 FY 15



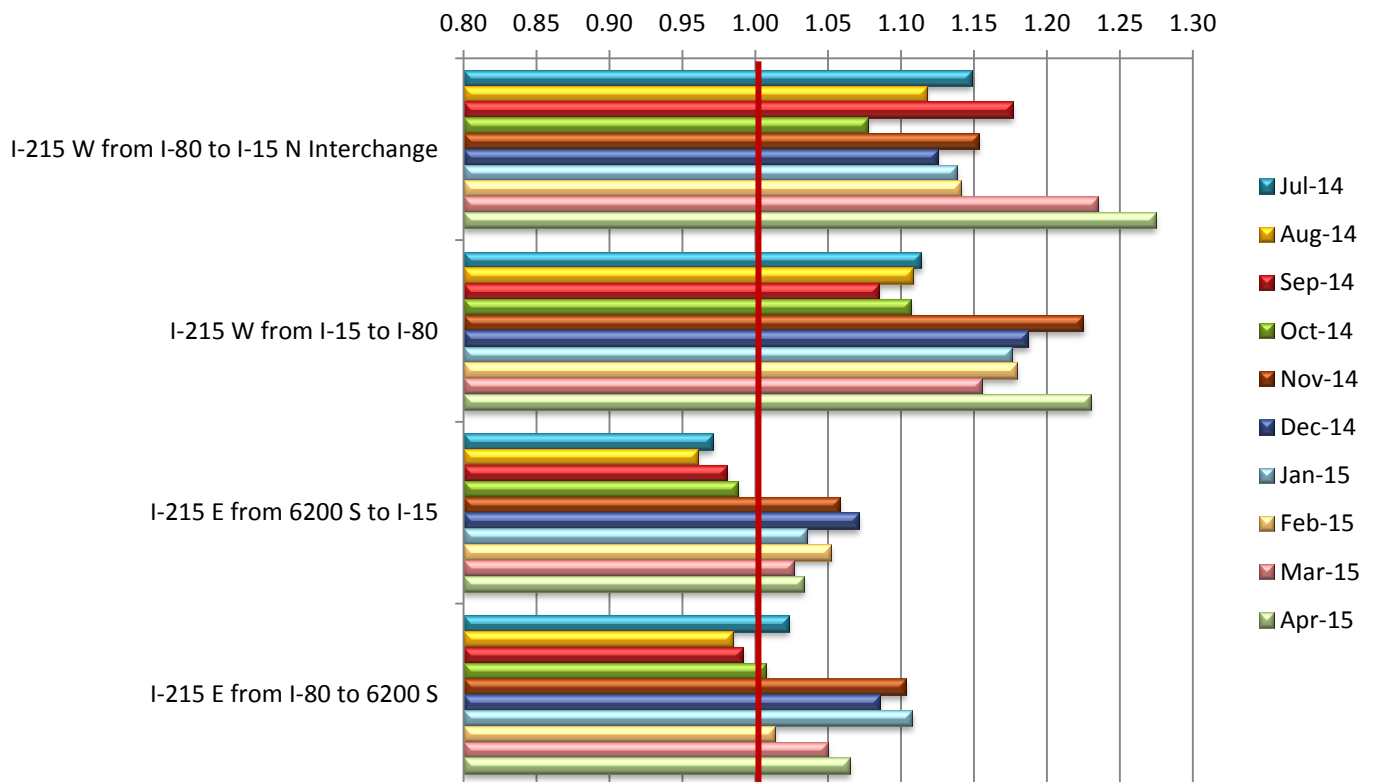
PM Peak Travel Time Index for I-80 FY 15



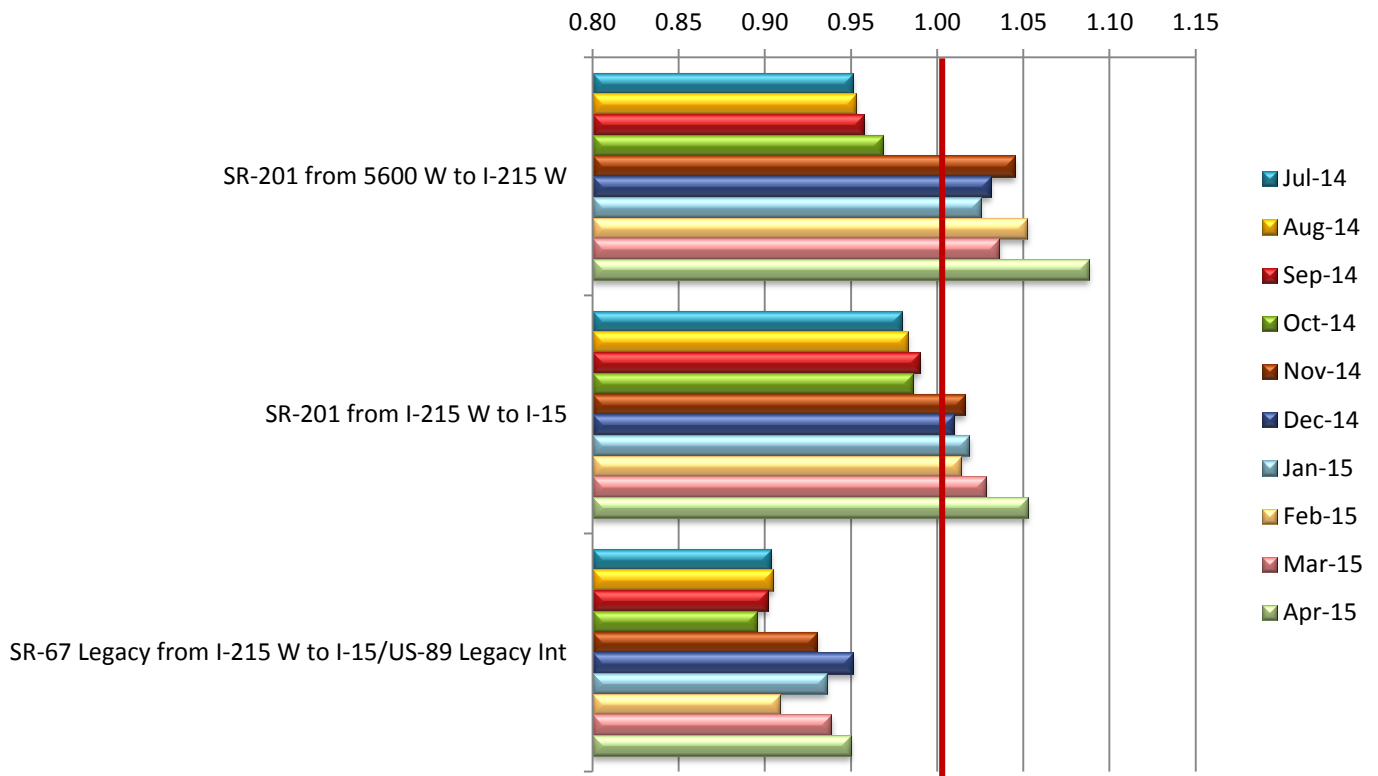
AM Peak Travel Time Index for I-215 FY 15



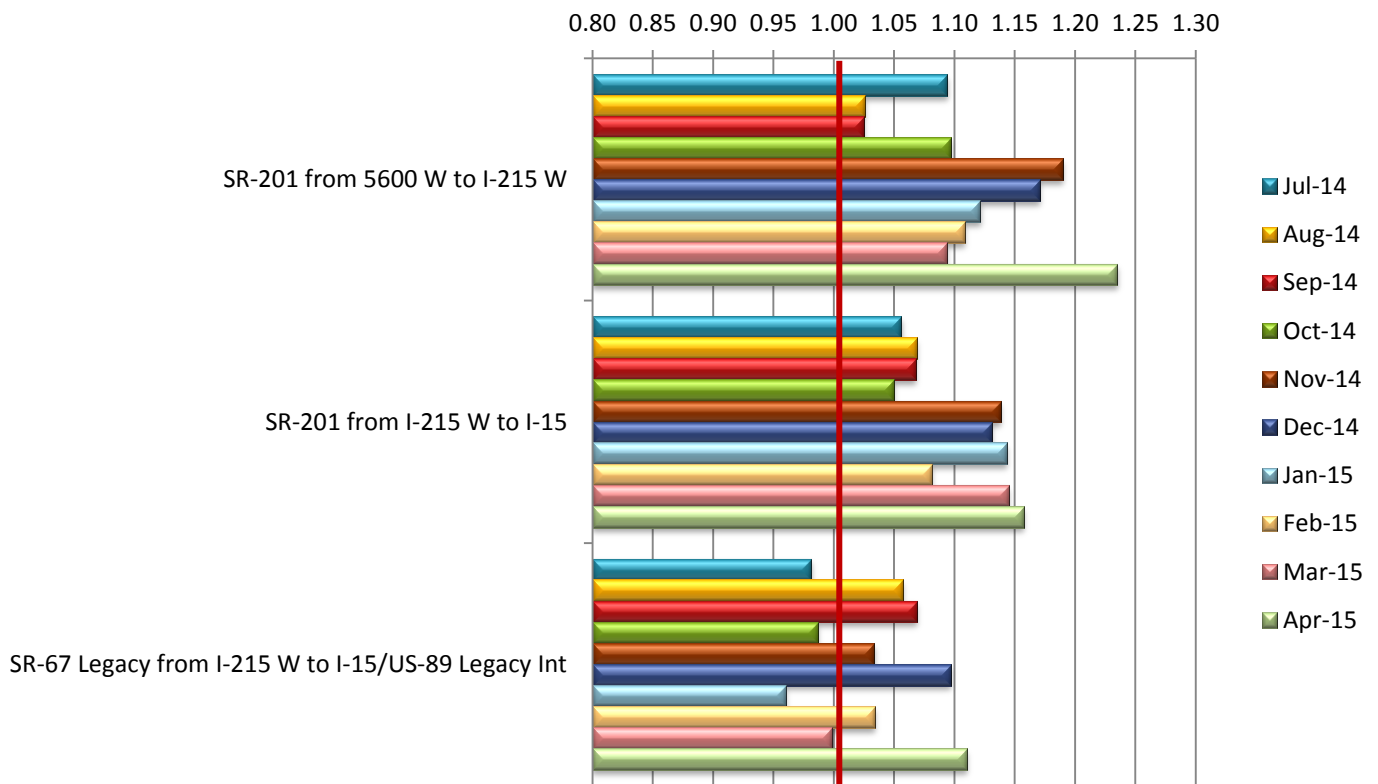
PM Peak Travel Time Index for I-215 FY 15



AM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 15

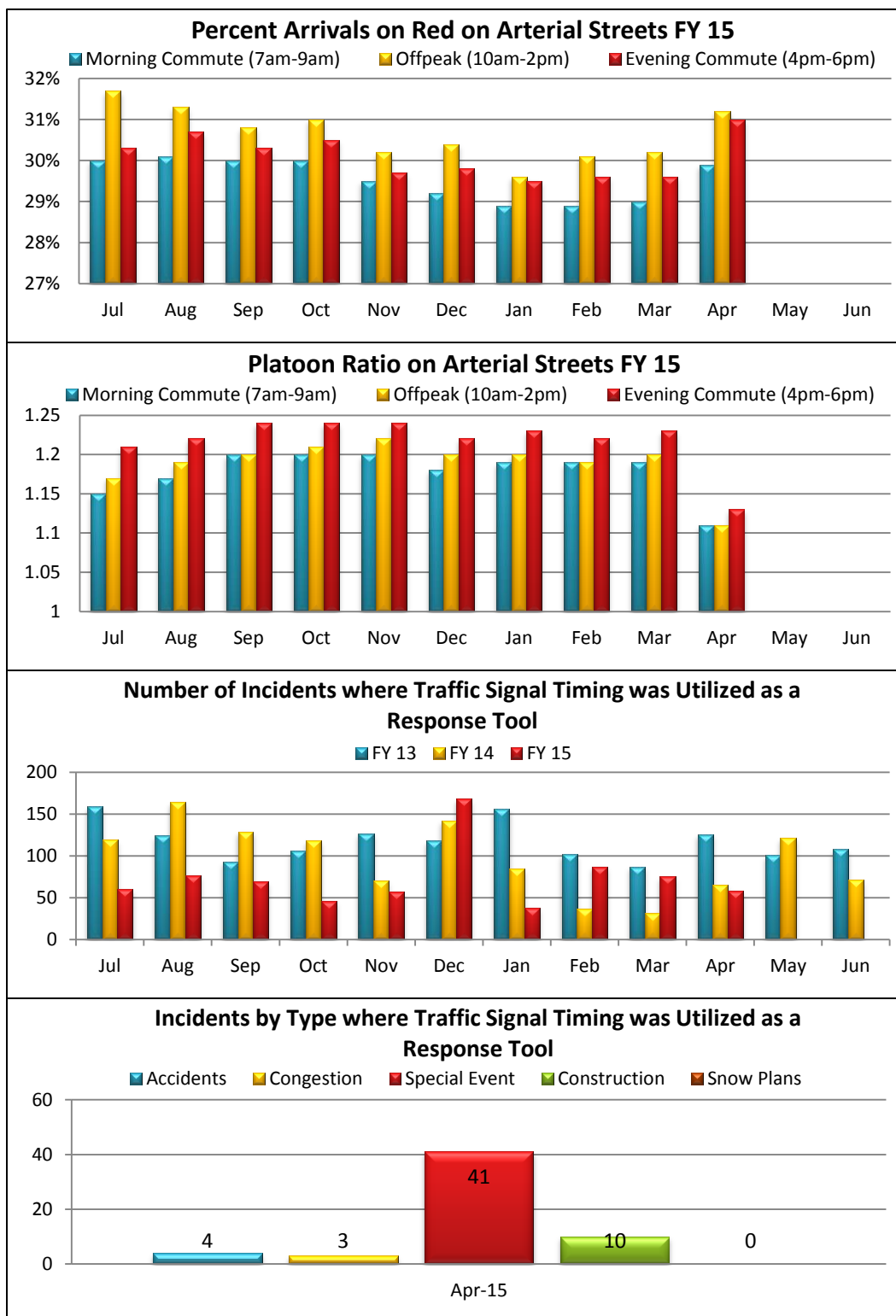


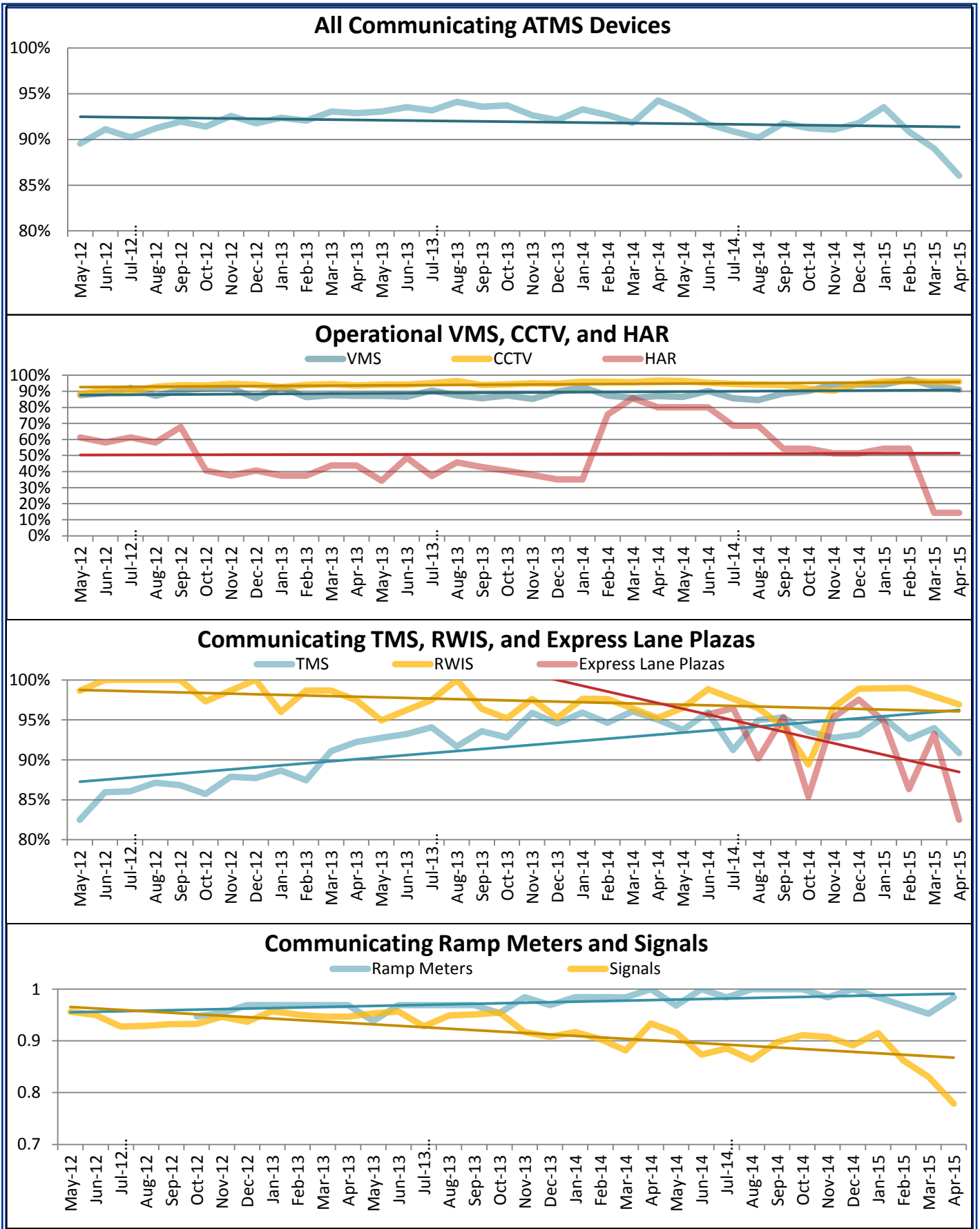
PM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 15



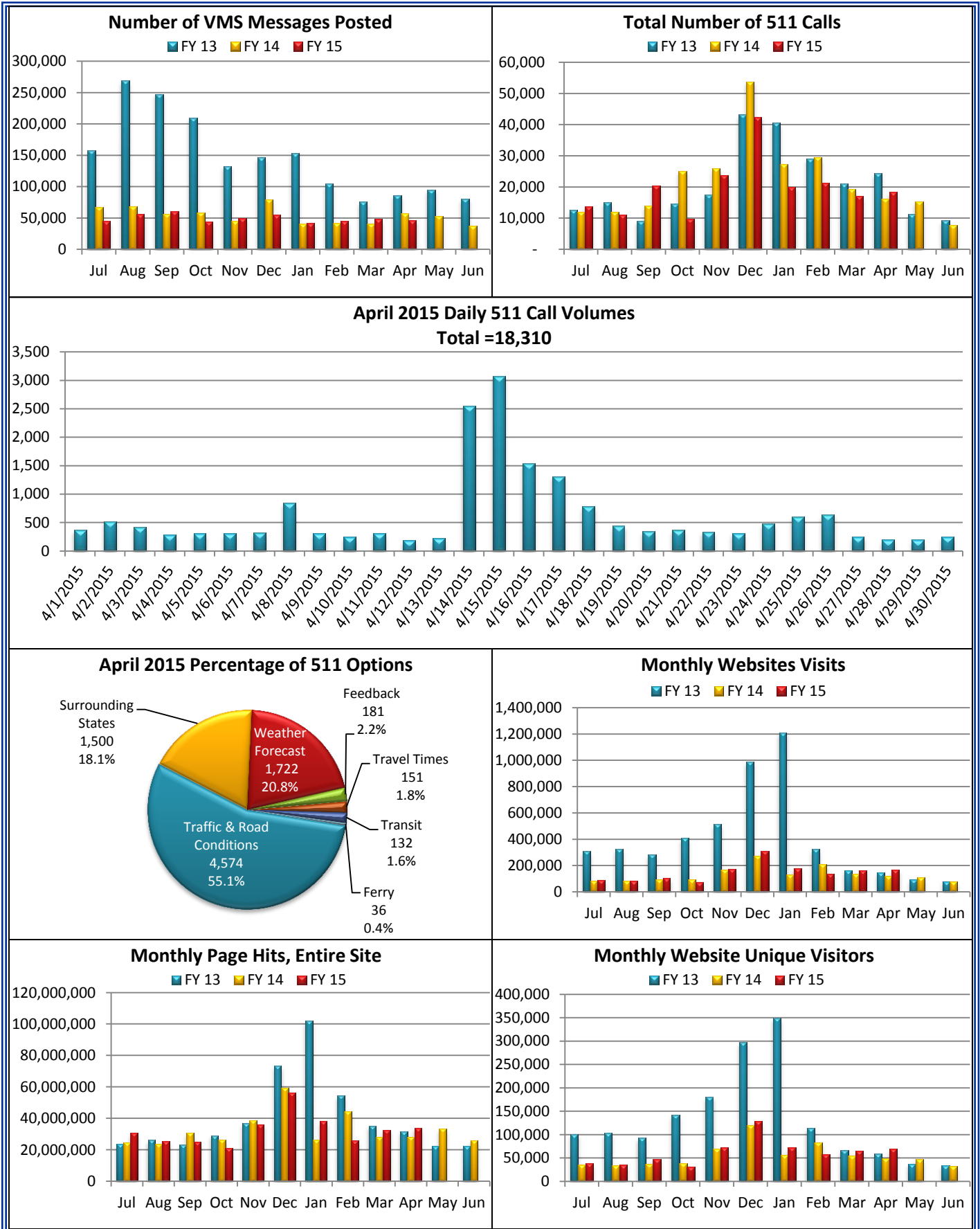
Arterial Traffic Level of Service

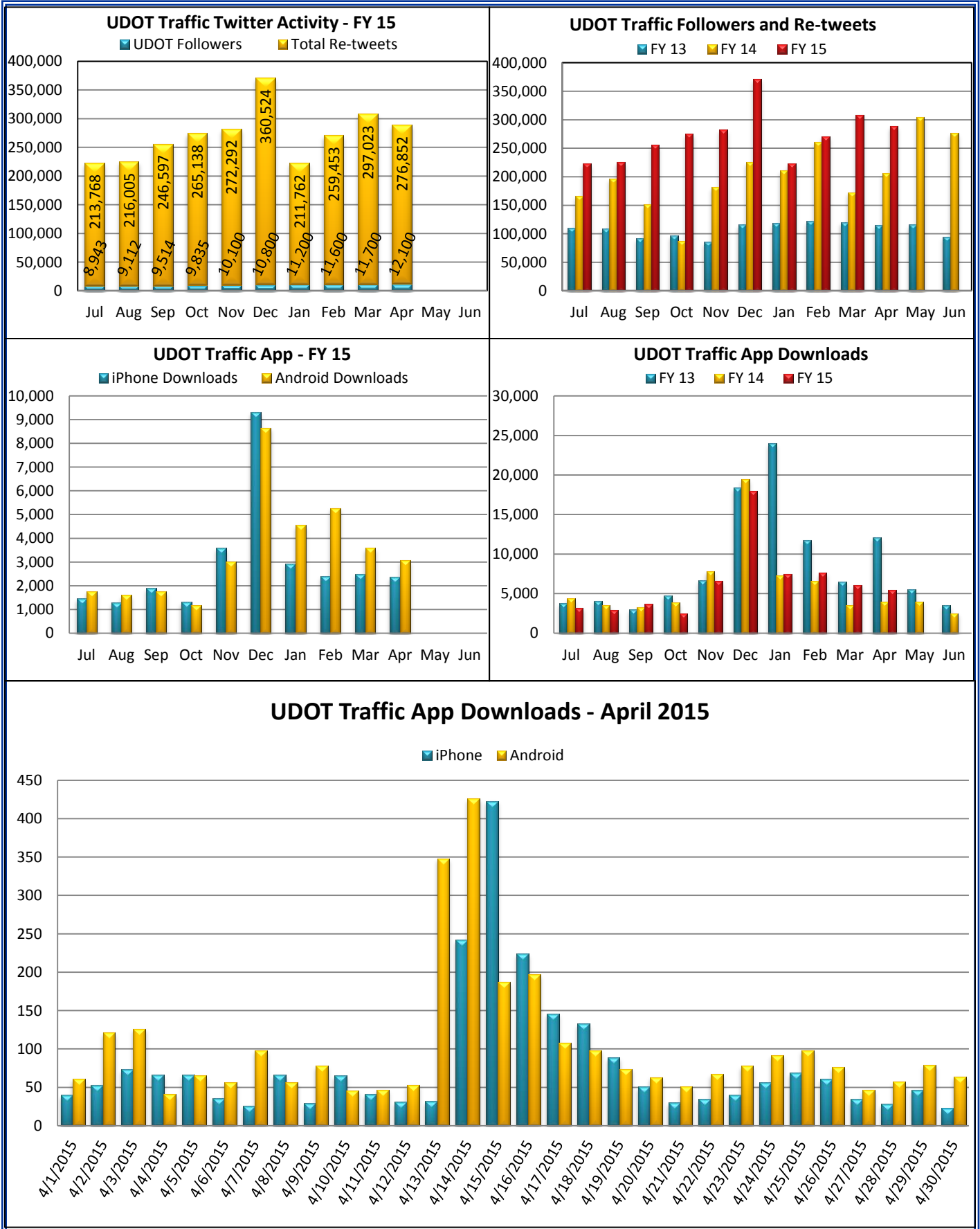
The percent arrival on red along the arterial statistics are generated automatically through the automated traffic signal performance measures, which show real-time and historical functionality at signalized intersections. The system automatically time-stamps when each vehicle arrives at the intersection and then compares the detection time-stamp if the phase was green or red. The percent arrival on red data is averaged over the 24 hours of the day and days in the month. . The lower charts shows the number of incidents where traffic signal timing was modified in order to help traffic flow around closed lanes, or to help relieve excessive congestion.



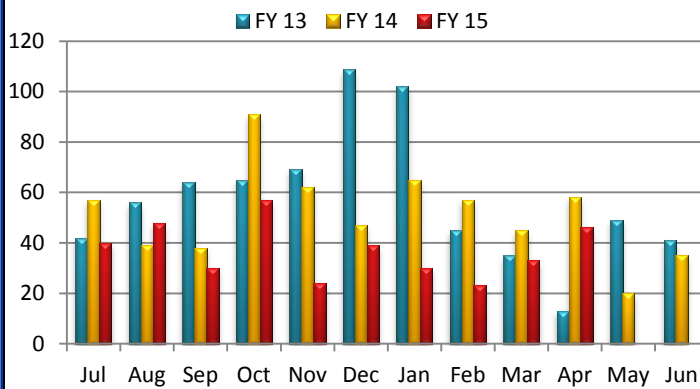


Traveler Information

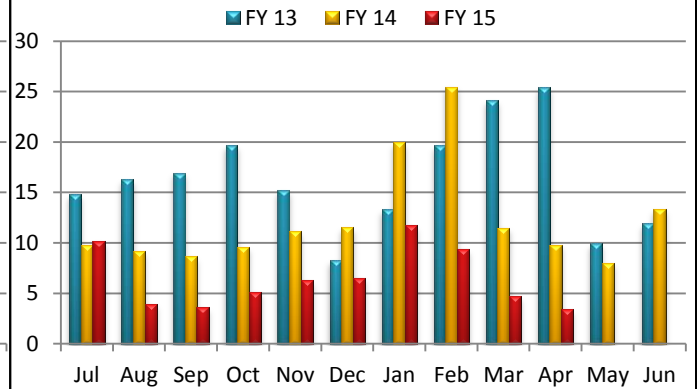




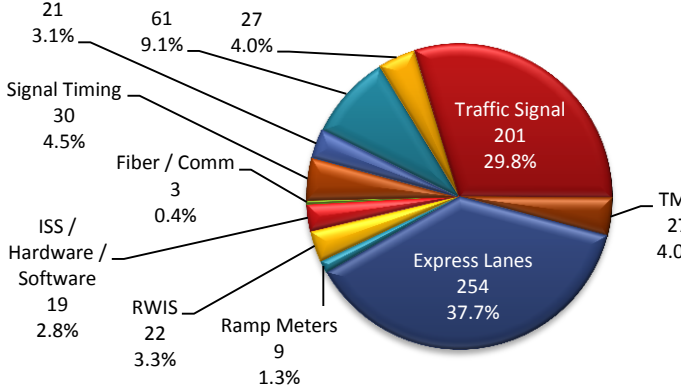
Number of "Ask UDOT Traffic" Questions



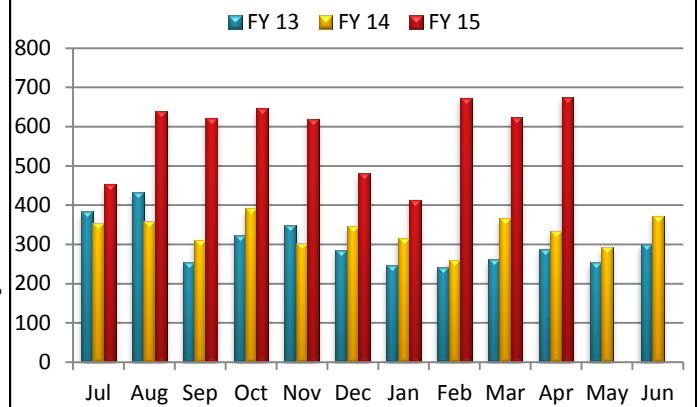
Overall Average Work Order Turnaround Days



New Work Orders by Device Type April 2015

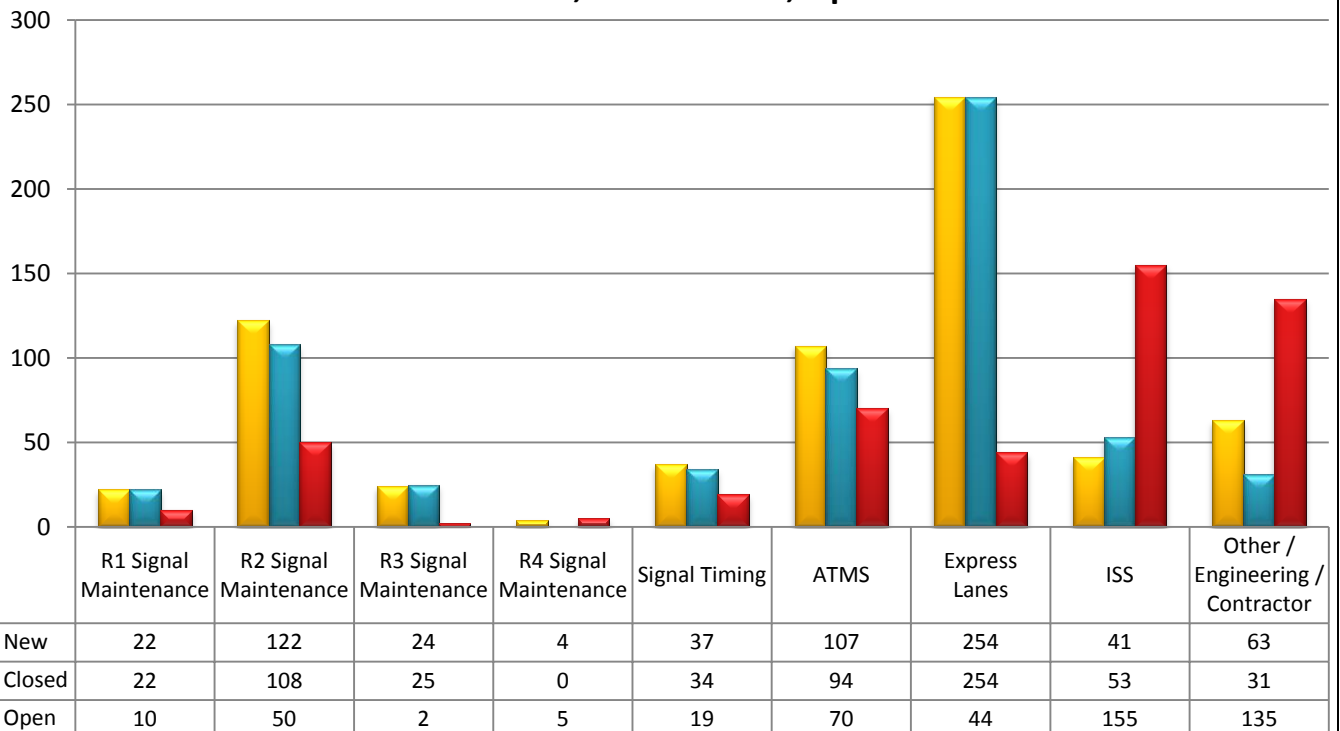


Number of New Work Orders



Work Order Statistics by Group - April 2015

Total New = 674, Closed = 621, Open = 490





CONTROL ROOM

The control room supported UDOT resources and the public with construction projects, weather events, high impact crashes and incidents, and other miscellaneous events. The operators handled 1487 phone calls in April along with their daily tasks of creating and managing incidents, posting VMS messages, emergency alerts, 511 messages, and registering work orders for ATMS maintenance.

The Traffic Operations Center Liaison (TOCL) was activated 13 times in the month of April for a variety of events, with the most serious being a high impact weather event that affected most of the state with wind, dust, and then snow and rain. Scheduled assignments for TOCL staffing was implemented for the I-15 full closures for road work in Davis and Utah counties.

A major storm, spanning April 14 to 17, had major impacts on Utah roadways. Blowing dust in Tooele County caused visibility to drop to near zero on I-80. This resulted in a major crash involving several semi-trucks and multiple passenger vehicles with one fatality and twenty-five people injured. I-80 in Tooele County was closed until the winds subsided and the crash was removed. The control room helped coordinate response as an information resource and a central point of contact for the public and UDOT via TOCL. Pre-event and day-of VMS messaging, emergency alerts, 511 messages and all other resources were activated to help inform drivers of the storm hazards. There were several other crashes throughout the state.

Control room traveler information support played, and is still playing, a vital role informing drivers about the I-15 Point, I-15 South Davis, and I-80 Wanship projects. There were two high impact closures for road work. The first was at 400 North in Davis County with I-15 being closed for a bridge demolition. Truck restrictions were lifted and all traffic was diverted to Legacy Parkway. Pre-event and day-of VMS messaging helped mitigate delays and congestion. The second road closure was near Springville on I-15 for construction project warranty work. Public information outreach coordinating with the control room helped minimize delays for this closure. The TOCL was active for both of these closures.

The Operators supported a moving lane closure while ATMS maintenance performed maintenance on express lane equipment. This effort was supported with VMS messaging, checking software when equipment was brought back on line, and monitoring traffic backing with the CCTV cameras.



President Obama visited Salt Lake City and the control room closely monitored motorcade movements and supported multiple freeway closures along the Wasatch Front in support of this event.

The control room coordinated with local law enforcement to support the Salt Lake City Marathon, using cameras and signal timing support to help make this event successful with low traffic impacts.

The Payson LDS Temple opened for public tours on April 23 and DPS/UHP requested support for expected heavy traffic volumes in the area from this event. Traffic signal operators monitored the area for congestion and worked with signals to support law enforcement and help keep the roads clear



WEATHER INFORMATION

The Weather Group had 406 overall weather interactions, 143 outgoing weather alerts, 12 National Weather Service collaborations and 25 Road Weather Alerts.

Climatology

April weather was relatively normal after several months of warmer and drier than average temperatures and precipitation. The largest storm of the month occurred in mid-April with 5.8" of snow falling in Salt Lake City and a major dust storm in the west deserts preceding the cold front associated with this storm.

Weather Operations

There was one tour of TOC weather operations room in April by UDOT's new Communications Director, Joe Walker. Additionally, the weather group met with nine maintenance sheds in regions one, two, and three to assess how to better meet their weather forecasting and reporting needs.



TRAFFIC OPERATIONS AND REPORTING

Supported and worked on the following efforts:

- ❖ Kaysville 200 North interchange analysis.
- ❖ Congestion reporting.
- ❖ Orem State Street master plan.
- ❖ I-15 Managed Freeways study.
- ❖ I-215 west belt MOT.
- ❖ I-215/SR-201 interchange analysis.
- ❖ Provo City connectivity issues.
- ❖ I-15 South Davis bridge deck demolition.
- ❖ I-15 CORE warranty work MOT.
- ❖ I-80/State St EIS.
- ❖ Jeremy Ranch interchange analysis.
- ❖ Bluff St/Sunset Blvd analysis.
- ❖ I-15 corridor study in Salt Lake County.
- ❖ I-15 Technology corridor study in Utah County.
- ❖ MaxView training.
- ❖ 10600 S IACR.
- ❖ Monarchs stadium circulation special event planning.
- ❖ I-15/Provo Center Street analysis.
- ❖ Access control issue in Kanab with region four.
- ❖ NCHRP panel discussion on DDIs.
- ❖ 5400 S/Redwood Rd TIS review.
- ❖ SR-68, 201 to California MOT support.
- ❖ DDI safety research project.
- ❖ Provo/Orem BRT before/after development analysis.





ITS ASSET MANAGEMENT

Six CCTV cameras, five TMS, four RWIS cameras, and five traffic signals were integrated. The team continued updating data on UPlan, and found several duplicate records, which have been corrected. They have also continued to check CCTV image quality and started the after action report about a dust storm on I-80 and subsequent multi-vehicle crash.

ATMS MAINTENANCE

Teaming

The ATMS lab technicians continued cross training with and continued to support the express lanes team. Members of three ATMS teams, those of express lanes, field, and lab stood on standby during the major storm warning in mid-April.

Field Team

The team trained Horrocks Engineering on chain up sign operations, power and modeling of the LED flashing light system of the signs. Worked with region one's sign crew on replacing the Truck Prohibited Sign structure located at NB 500 South Redwood Road. The sign blew over in the last windstorm. Returned to I-15 Manderfield area to redo the LFOT after the contractor corrected problems found by the original LFOT (local field operation test) on a Wanco sign. The Manderfield visit was coupled with our planned visit to St. George to replace all of the solar batteries on southern Parkway. In region four we continued to work with Brent Beach and the Beaver shed on the installation of a new Wanco VMS Sign on I-15 NB @ MP 100, where we had to rewire the battery system and trouble shoot, obtaining the manufacturers consent to modify the battery recharging system.

The team also completed 75 work orders that were generated for the month.

ATMS MAINTENANCE



Lab Team

The team tested and repaired 24 ATMS devices. We picked up, burned in and released five traffic signal cabinets for the following locations: Pony Express and 14600 S, 5600 W, 6200 S-7000 S (2nd cabinet), SR-201, SR-202, US-89 at 1300 S, and SR-71 at 1300 S and a 334 cabinet for Cathy Jones' VMS on I-15 at Springville. We released a Type I VMS sign for the I-15 South Davis location. We also tested a Wavetronix Matrix sensor for use in the gate opening system which may be installed at shed 243, I-80 @ Mountain Del exit and began testing the Vitec video decoder for future use of IP-CCTV cameras. The team transported 2 TOC pool cars to the Toyota dealer for safety recall service.

The Electronics Lab closed 13 work orders during the month of March.

Express Lanes Team

The team closed 254 system generated work orders, hard reset six VTMS, rebooted six clusters, repaired and configured three clusters, and replaced two vehicle detection pucks at Plaza 1. The team performed the weekly system drives and performed preventative maintenance inspections on 12 Cabinets and 42 lane signs, cabinets and lasers utilizing the first moving lane closure for Express Lane maintenance. The moving lane closure saved 100 staff hours in labor and saved \$10,000 in traffic control.. This method proved to be very successful and will be used for future ETC PM tasks. The team has continued updating the ETC Specifications and Standard Drawings.





PROJECTS

Region One

- ❖ **Statewide Signal Interconnect:** This has been changed to a larger scope and will be called Statewide Signal Interconnect. PineTop Engineering has been working on the design for this to advertise.
- ❖ **Antelope and US-89:** This project is under construction and nearly complete.
- ❖ **200 N. 300 W. Kaysville:** This is under construction.
- ❖ **I-15; SR-30 to the Idaho State line:** This project has been designed by PineTop Engineering and is ready to advertise. This project needs major funding for ATMS. This project may be part of a partnership with a telecom.
- ❖ **Layton Interchange:** This project is in design.
- ❖ **200 N. and Flint St.:** This project is under construction.
- ❖ **Logan HUB relocation:** Project is under construction. Nearing completion.
- ❖ **US-89; SR-193 to Cornia Drive:** This project is under construction.
- ❖ **US-89; Antelope Drive Extension:** This project is under construction.
- ❖ **Logan CCTV's:** This project is under construction.
- ❖ **SR-126 and 1300 N.:** This project is in design.



Region Two

- ❖ West Freeway Travel Times.
- ❖ Salt Lake/Tooele Counties.
- ❖ Our consultant, Narwhal, has completed a concept design and inventory of new blue tooth sensors that will help us fill a gap in our travel time to and from the Tooele County area. Blue tooth sensors will collect individual travel time measurements from vehicles using their blue tooth equipment in the car, or an occupants wireless device running blue tooth technology. A third party vendor collects the MAC address from the reader, then when it is picked up by another sensor, records the elapsed time, assigns a new, anonymous number and discards the MAC address. This allows for storage of anonymous user travel times that can be averaged and displayed on the Variable Message Signs and the graphic travel speed for the travel map on UDOT Traffic.

Region Three

- ❖ **SR-92 CCTV/Hybrid VMS (12641):** Tested Adam's controller and determined that software development is necessary for sign activation function. Met with contractor to coordinate new scope.
- ❖ **SR-145 Pioneer Crossing Extension to SR-73 (11349):** Started 30 day burn-in.
- ❖ **Saratoga Springs; Pony Express; SR-68 to 800 West (8581):** Saratoga Springs needs project completed before 2015 school year begins. Announced that they will be constructing the 800 West signal before then.
- ❖ **Region three traffic signal connections (12774):** Utopia ran fiber drops into all six Payson signals that need connections. Began dialogue with Spanish Fork City to access their city network to connect four city signals to network.
- ❖ **Roosevelt; SR-121 @ State Street Signal (12078):** STRATA agreement signed. Waiting for them to submit their deployment strategy.
- ❖ **Park City Area Traveler Information Infrastructure signing (12812):** Working with Park City to establish cooperative agreement regarding funding participation, sign design, aesthetic concerns, and operational guidelines.
- ❖ **I-15; SR-92 to SR-73 Fiber/Conduit upgrade installation (12806):** Project transferred to The Point project. Rail road crossing permits approved.
- ❖ **US-40 CCTV/Signal connections (12805):** STRATA agreement signed. Waiting for them to submit their deployment strategy.
- ❖ **Orem ITS Upgrade (8755):** Addressed final punch list.
- ❖ **Vernal; US-40 @ 2100 West Signal/CCTV (13018)** On hold due to ROW issues.
- ❖ **Roosevelt; US-40 @ 2000 West Signal/CCTV (12980):** On hold due to ROW issues.
- ❖ **Spanish Fork; SR-156 @ 800 North Signal/CCTV (13098):** 30 day CCTV burn-in started.
- ❖ **Orem; 800 North Extension (Vineyard) (10810):** Contractor to relocate ATMS junction boxes.
- ❖ **Provo Canyon RWIS/VMS (11410):** Held Plan-in-Hand meeting.
- ❖ **US-189; State Park to Rock Cut passing Lanes (11415):** Held Geometry/Alignment meeting.
- ❖ **Fiber connection to three Maintenance Sheds:** Met with contractor to identify scope, schedule, budget. Ordered equipment.

Region Four

- ❖ **St. George:** We will be working on getting a scope together to get some CCTV's and various signal interconnections. PIN has been set up.
- ❖ **Pine Creek Truck Climbing Lane:** This project is under construction.
- ❖ **Fiber upgrade for US-6, Helper and Price Signal Integration:** We are still waiting for the private telecom to get their portion of work completed.
- ❖ **Beaver Truck Climbing Lane:** Project is under construction.
- ❖ **I-15; North Beaver to Manderfield:** Solar deficiencies are being mitigated with the contractor.
- ❖ **Cedar City Fiber:** Project is in design.
- ❖ **Price, Helper fiber and Interconnect:** This project has been completed. We are still waiting for the telecom to complete their portion of work.
- ❖ **Beaver Shed and Fiber HUB:** This project is in design.

ITS Standards and Specifications

Work continued on the AT-12 CCTV foundations for CCTV poles drawing. The changes will include adding a new drawing, AT-12B, to keep the non-lowering pole base plates and anchor bolts designs separate from the new lowering poles. The changes in the new base plates were brought about by using the AASHTO LTS-6 design standard for the new CCTV lowering poles. A round base plate is preferred by the UDOT bridge design unit.

Work continues on new standard drawings for the electronic toll lane tag reading equipment. It is estimated that the new drawings will expand the ATMS drawing series to 25 (+/-) drawings.

Narwhal Group is working on the NEC and NESC review.

Procurement

- ❖ The ATMS device install, relocate or, repair contract was advertised and the pre-bid meeting with the contractors was held.
- ❖ The ATMS fiber optic cable maintenance, repair and, install contracts expire in June 2015. A meeting to discuss revising the existing contract documents took place and documents were selected for revision and placed on the shared drive.
- ❖ Work continued on developing an economical solution for advancing the CCTV traffic surveillance system towards IP CCTV video. The request for information for the IP decoder was advertised and only one local vendor submitted information.
- ❖ A teleconference with VITEC was held. VITEC produces CCTV video wall equipment. We are interested in their multi-format IP decoders for testing. VITEC will send a demonstration unit for testing with UDOT/TOC video projectors. VITEC's projects included the NYDOT upgrade of the traffic surveillance video system and video wall.
- ❖ Universal Industrial Sales was contacted to see if a minor change in a hand-hole location could take place without changing the cost of the lowering poles. The hand-hole is on the upper pole and the new position of the hand-hole allows TOC crews to perform equipment retrofits easier. The change was granted and will be passed through MGSquared for inclusion in the contract drawings.
- ❖ Brent Ness of Redline Radio (traffic, CCTV, data, radio equipment) stopped by the TOC to introduce himself to the staff. Brent is the new USA sales representative.

Special Activities:

Two variable message signs will be designed and constructed in the metro area. One is planned for I-215 Eastbound near 2300 East and the other on I-15 Northbound, North of Bangerter. Meetings will begin next month to initiate discussion on specific location requirements.

Visited proposed locations for the new VMS to get oriented with the project.

Acronyms

CCTV	Closed Circuit Television	DPS	Department of Public Safety
EIS	Emergency Information System	HAR	Highway Advisory Radio
I2TMS	Integrated Interagency Traffic Management System		
ITS	Intelligent Transportation System	LFOT	Local Field Operations Test
MIC	Manager in Charge	MOT	Maintenance of Traffic
RWIS	Road-Weather Information System	TAC	Technical Advisory Committee
TMD	Traffic Management Division	TMS	Traffic Monitoring Station
TOC	Traffic Operations Center	VMS	Variable Message Sign

